

REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claims 1-21 are pending. The specification has been amended editorially. Claim 19 has been rewritten in independent form and amended editorially, as supported for example by the discussion of Fig. 12 at pages 30-31 of the specification.

Applicants appreciate the courtesy shown by the Examiner and her supervisor in discussing this case with the undersigned on July 18, 2007. The discussions of the interview are reflected in the remarks that follow.

In response to the objection to the drawings, the reference numerals 14-16 in the drawings now are discussed in the specification. Fig. 6 has been amended editorially as requested. Figs. 8A-D have been labeled as prior art. Applicants respectfully traverse the issue concerning the random distribution of spheres in the thickness direction of the focusing layer. This feature is shown clearly in Figs. 1A-F. The end use of the material illustrated in Figs. 1A-F readily can be understood from the illustration in Fig. 7. Applicants therefore submit that the original illustration is more than adequate for the invention as claimed in claim 1, and that Applicants should not be put to the burden of preparing additional figures unnecessarily.

Claim 19 was considered objectionable. The issue is rendered moot by rewriting claim 19 in independent form. Applicants are not conceding the correctness of the objection.

Claims 1-5 have been rejected as obvious over "Background" in view of Kashima. The rejection contends that the beads 20 in layer 18 of Kashima would have rendered it obvious to provide the glass spheres of Background at random locations in the thickness direction. Applicants respectfully traverse this rejection.

The rejection justifies the combination of the teachings of Kashima with Background "because both concern retroreflector sheets in which beads are disposed" (Office Action, page 5). This is manifestly incorrect. Kashima is not directed to a retroreflective system. Instead, Kashima is directed to a light transmissive system. As can be seen in Fig. 2 of the reference and the accompanying discussion at col. 10-11, the light is transmitted from the surface 22A of the light transmissive material 22 and passes through the layer 18 and base 12 to be emitted from the prism surface 16. This in no way resembles a retroreflective system, in which a reflecting layer is formed behind the spheres in a focusing layer and the spheres act to focus incoming light on the reflective layer. In such a system, as shown in Fig. 8B, incident light b1 from the front is

reflected by the metal reflective layer on the backside of the glass sphere focusing layer, and retroreflected as reflected light b2 substantially parallel to the direction of incidence, while oblique incident light c1 also is retroreflected as reflected light c2 substantially parallel to its angle of incidence.

The layer 18 of Kashima in which the beads 20 are disposed in no way acts as a focusing layer. This in fact would be contrary to the operation of the Kashima device, which ultimately seeks to diffuse light from the light transmissive material 22 (col. 11, line 27).

The random distribution of the beads 20 in the thickness direction of layer 18 in Kashima is the result of the desire to have some beads protruding from the lower surface of the layer 18 to ensure that minute gaps are present between the light transmissive surface 22 and the layer 18 (col. 11, lines 16-22). This feature has no relevance whatsoever to a retroreflective system, in which the source of the light handled by the retroreflective device is on the same side as the retroreflective device's light emitting surface.

The experimental results reported in the specification show that, in the context of the present retroreflective system, the varying thickness position advantageously provides a marked increase in the wide angle viewability of the retroreflective system. Nothing in Kashima suggests in any way that the positioning of the beads 20 in the thickness direction would have any such effect. In addition, the rejection contends that the combination is justified because "randomizing the position of the beads to [sic] prevents interference fringes from other elements of the sheet" (Office Action, page 5). However, nothing in the present record establishes why this consideration would be considered relevant to the retroreflective system of the present invention in view of the gross differences in the natures of light transmissive and retroreflective systems.

The Supreme Court in KSR clarified that obviousness based on a plurality of references need not be supported by an express teaching, suggestion or motivation to combine from within the references themselves. However, the Court in no way declared an "open season" for combining references, and repeatedly stated that a key point to the analysis is whether the element from the reference, when included in the combination, predictably performs the function for which it was known. The present rejection fails to meet this. As demonstrated above, the spheres 20 in the light transmissive system of Kashima do not remotely have the same function when transplanted into a retroreflective system, and in view of the gross differences between the

systems and the roles the components play in the two systems, there is no basis for asserting that their performance in the retroreflective system would be predictable. The rejection satisfies neither prong of the analysis in KSR and the present record provide no reasonable basis for combining the required features of Kashima with Background absent the use of impermissible hindsight relying on the present disclosure. Therefore the rejection should be withdrawn.

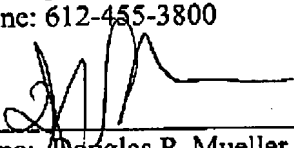
The remaining rejections rely on the Background and Kashima in combination with additional references. These references do not remedy the deficiencies of the Background-Kashima combination and should be withdrawn for at least the same reasons. In addition, with respect to claim 6, Kashima would not be concerned with the use of relatively high refractive index material (see col. 12, line 25-41), and in fact would seek to avoid such material to preserve the light diffusion performance of the light transmissive device. With respect to claim 7, Kashima specifically teaches the detrimental aspects of spherical beads greater in size than 10µm in the light transmissive system (col. 11, lines 58-63), again highlighting the gross differences between the light transmissive and retroreflective systems. With respect to claim 19 and the discussion at the bottom of page 8 of the Office Action, claim 19 requires the light source to be a fixed distance from the sign, and therefore the position in the Office Action is moot.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

HAMRE, SCHUMANN,
MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
Phone: 612-455-3800

Date: October 2, 2007

By 
Name: Douglas P. Mueller
Reg. No. 30,300
Customer No. 52835

Amendments to the Drawings

Replacement sheets are filed herewith for Figs. 6, 7 and 8A-D, to make editorial corrections and include the label as prior art as appropriate.